# Enlightened data center automation in the cloud age

How to achieve transformative efficiency gains—without disrupting IT

The cloud beckons, with its promise of higher agility, IT efficiency, and cost savings. But no business can make its move to the cloud in a single leap. What's needed is a ladder—a step-by-step process for transforming the potential into real results. And the ladder, in this case, is data center automation. Simply put, if you want to take full advantage of the cloud, you first need to take automation to a higher level.

Forward-looking companies are realizing that automation is an absolute prerequisite for migration to the cloud—and the key to a smooth, non-disruptive transition to hybrid service delivery. They are also learning that the move to the cloud is a process, not a project, and that it requires automating not just infrastructure elements but also business processes and service delivery.

This paper describes how enlightened companies are approaching data center automation in the age of cloud computing—and shares the lessons they've learned along the way. It provides real-world examples and practical advice for IT leaders who are interested in maximizing the success and ROI of their automation strategies and investments.

## Data center automation: a natural evolution

Most companies have been automating data center tasks for years in an effort to improve efficiency, save time, instill consistency, reduce errors, and cut costs. They've used virtualization to consolidate and automate specific infrastructure elements. They've begun to automate routine processes: provisioning, configuration, and patching. They've written custom scripts or purchased point products to automate specific tasks. And they've experienced success, at least on a modest scale.

But the cloud adds a whole new dimension of business benefits—and a new level of urgency—to data center automation. Through the cloud model, the data center can achieve unprecedented levels of agility, efficiency, and cost savings. The cloud empowers IT to:

- Deliver a wider variety of services and make them more conveniently accessible to a broader range of employees and customers
- Orchestrate applications, data, and infrastructure components to quickly deliver a service as one business request, rather than multiple requests from multiple departments
- Transform complex, labor-intensive processes into smooth-running, cost-efficient self-service operations
- Cut the cost and time frames of delivering high-quality services, immediately and over time

That is why the transition to the cloud model is accelerating in IT departments worldwide. More than a third of current IT budgets are now allocated to cloud solutions, according to IDG Research,[1] and over 50% of respondents in the IDG survey plan to use cloud-based services to supplement their internal IT service suite. Fully 86% of respondents in a recent CIO survey said they now have cloud projects in progress or planned; 65% indicated that their enterprises will soon depend on private or hybrid clouds.[2]

Clearly, IT is moving toward a cloud-based **hybrid service delivery** model that includes a mix of public clouds, private clouds, hybrid clouds, and traditional on-premises IT services. That means traditional IT departments must begin preparing to build, broker, manage, and consume services in a hybrid environment. And that requires a well-thought-out automation strategy—not just at the element level but at the business process and service delivery levels.

However, many IT leaders do not yet fully appreciate just how crucial data center automation is to the success of their cloud strategy—or the full range of considerations that should guide their automation strategy. Others mistakenly perceive that the move to hybrid service delivery is a project rather than a process, or that it requires a disruptive transformation in the way IT operates.

The remaining sections of this paper provide practical advice—based on the experiences of experts and IT managers who have focused on automation as a top priority—to help your enterprise maximize the benefits of automation in the era of hybrid service delivery.

## Enlightened automation: key considerations

The first and most critical step taken by forward-thinking companies is to take data center automation seriously.

Enlightened companies embrace automation. They view automation as a business imperative and a new opportunity to increase (and prove) the value of the IT organization, and they make a long-term commitment to taking it to a higher level. They create teams specifically to focus on automation. They identify what to automate and when, which tools to use, and how to quantify the savings and business value. Some IT departments now employ automation specialists and develop automation centers of excellence so that other parts of the organization can take advantage of their expertise.

### Evaluating the opportunities and creating the strategy

Forward-thinking organizations work hard to develop a clearer understanding of the opportunities and the goals of automation up front, and they take a structured approach to maximizing the business benefits.

A well-thought-out automation strategy clarifies the priorities, identifies the low-hanging fruit for successful automation projects, and helps align IT with business goals. It also helps remove fear, uncertainty, and doubt for both management and the IT staff. Once management understands that an evolutionary approach to automation does not require a disruptive IT transformation, and that it does not need to be implemented in "big bang" fashion, it can more easily see the value. And resistance from IT employees fades once they understand that automation is not only a way to save time and effort but also a way to increase their value to the business.

[1] Source: IDG Enterprise Cloud Survey, January 2012.

[2] Source: IDG Research Services survey of 40,000 members of the CIO Forum on LinkedIn, May 2011.

An important step in mapping out the automation strategy is to consider the full range of potential benefits. Some of the biggest benefits, enlightened companies discover, are actually some of the least obvious. The key benefits cited by participants in a recent study of IT automation by Dimensional Research included the following:

- **Consistency**: Through the process of automation, IT departments standardize their tools and processes and achieve new levels of consistency and accuracy in IT processes. Standardization also helps eliminate human error that occurs in manual processes.

"The big benefit…is consistency. You remove the human factor and do everything in the right order."

"Manual configuration is tedious so you make mistakes. Before automation, we would avoid making any changes. Now our configurations are current and the accuracy is tight."

"The standardization alone is worth it. Just knowing you're going to get the same result every time has huge value."[3]

- **Auditability/compliance**: Automation delivers the information needed for compliance reporting and auditing. Many of the Dimensional Research study's participants had been unable to run compliance reports in the past.

"Compliance drove our automation strategy. Being able to control permissions at a very detailed level allows us to meet SOX compliance goals."

"We struggle to put a hard dollar value on consistency and auditability, but that's where the most compelling value of automation is obtained."

- **Problem resolution**: Automation tools can improve communication among IT teams and accelerate their ability to see and respond to issues that arise.

"Automation gives us better information, which means we solve problems faster."

- **Customer satisfaction**: The IT department's end customers don't necessarily know that more sophisticated data center automation techniques have been implemented—all they know is they get better service from IT, so they can get their jobs done faster and more effectively.

"Saving a bit of time for my guys, that's nice. Not impacting the customer is priceless."

- **Reporting**: Automation not only standardizes processes, it also documents them and produces reports that can be used in management-level decision making, compliance, and auditing.

"The best part of automation is the reporting. Just having the data about what's there delivers benefits in hundreds of different ways."

- **Higher productivity**: Automation accelerates routine tasks and processes, such as provisioning, patching, configuration changes, and so on, allowing IT staff to focus on higher-value activities.

"We're pushing out 10 million changes a year with six guys. Once you have your practices and tools in place, it's more than possible."

- **Higher ROI from existing assets**: Using automation enables companies to take advantage of technologies and techniques such as "thin provisioning" of servers and storage systems, allowing them to recapture capacity on those systems. This boosts the ROI of existing resources and may also allow companies to delay or avoid new capital expenditures that would otherwise have been required.
- **License consolidation**: Automation can be a catalyst for centralizing tools, which has the side effect of enabling IT to discontinue maintenance on certain products, which saves money and improves operations.

## Elevating data center automation to the clouds

After you've determined specifically how your organization can benefit from automation, what's the right starting point in actually implementing automation projects, and when can you begin moving toward the cloud model? There are three key phases, and they build on each other: automating operational tasks, automating IT processes, and automating service delivery.

### Automating operational tasks

Anything that is done more than once can be automated. Start by asking your IT staff what the most time-consuming, repetitive tasks are in their day-to-day routine. Focus on four key groups: the server team, the database team, the storage team, and the network team, and four key use cases: provisioning, patching, configuration, and compliance. For most organizations, these operational tasks represent the low-hanging fruit for automation.

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[3] "HP Customers Reveal Real-life Benefits of IT Automation," by Dimensional Research.

Automation can be used to streamline and optimize a wide range of tasks, including bare-metal provisioning of virtual machines, servers, networks, storage, and databases; compliance reporting; operating system or security patch updates; configuration updates; and more.

In many cases one team—the server team, for example—will already have automated one or more key operational tasks with good results. The lessons learned can then be passed to the other groups.

| Automate tasks | Automate IT processes | Automate service delivery |
|---|---|---|
| • Replace route manual tasks<br>• Free up resources for new projects | • Standardize on best practices<br>• Increase IT agility and quality | • Automate provisioning and cloud<br>• Cut service delivery time from months to hours |

### Automating IT processes

The next phase is extending the benefits of automation from the element level to the IT process level. Again, start by asking your teams which processes are bogging them down, taking too much time and effort. One common example: Incident management—there are too many events and not enough people to handle them.

One possible first step would be to automate your troubleshooting process and eliminate repetitive tasks. With this done, you can begin to think about automating the process of requesting services from IT. For example, instead of requiring tickets to be submitted to the help desk, you could transition to a self-service catalog with an automated request submission process. The multiple steps that were previously required would be automated and would execute in the background, so the request would be fulfilled faster with less inconvenience for the end user.

### Automating service delivery

Once the IT process has been automated, it becomes possible to automate the service lifecycle or closed-loop incident process (CLIP)—from initial provisioning to updates, change management, and continuous monitoring. This enables IT to support self-service environments for faster response times.

In the help desk example above, the self-service catalog (along with the automation behind it), could serve as the precursor to developing a private cloud that hosts and executes complete IT services for internal customers.

IT can now also take advantage of public or managed cloud offerings from trusted third-party providers with specific expertise, including **SaaS** (software as a service), **IaaS** (infrastructure as a service), and **PaaS** (platform as a service) offerings. Alternatively, IT can build hybrid clouds that combine the advantages of private-cloud, public-cloud, and on-premises service delivery.

It all builds toward one common goal: a hybrid service delivery model, where IT can deliver the right service from the right place at the right time.

## Summary

The cloud offers new levels of agility, efficiency, and savings for IT departments—and transformative capabilities for the companies they serve. But don't even think about making your move to the cloud until you've thought through your data center automation strategy. Automation is an absolute requirement for taking advantage of the cloud model, and the key to harnessing the full value of the cloud.

The key is to get started. Studies consistently show that the fastest way to get a return is to get started, and success breeds success as people see the tangible benefits. ROI also builds over time, with returns increasing dramatically as more processes are automated. And while the hard-dollar benefits of automation are substantial, there is even greater value in the soft benefits: job satisfaction for IT staff, higher end-user satisfaction with the IT department, tighter alignment between business goals and IT capabilities, and higher perceived value for the IT organization.

## Learn more

Wherever you are on your road to data center automation, HP can help you take the next step with total confidence. We offer a full spectrum of products and services that can help you accomplish your goals quickly and cost effectively, with minimal disruption and maximum ROI. For additional information visit **hp.com/go/dca** and **hp.com/go/csa**.

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